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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/665,429 | 09/22/2003 | Makoto Kubota | 03500.017562 | 6520 |

5514 7590 09/21/2005

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EXAMINER

KOSLOW, CAROL M

ART UNIT PAPER NUMBER

1755

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,429

Applicant(s)

KUBOTA ET AL.

Examiner

C. Melissa Koslow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1 August 2005 has been entered.

The amendments to the claims have overcome the previous new matter rejection over the claims and the rejection over U.S. patent 6,066,581. Applicant's arguments with respect to the remaining rejections have been fully considered but they are not persuasive.

Claims 5 and 9 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

The specification teaches the composition is prepared when the sol-gel precursors are mixed and that the purification steps occur before the sol-gel precursors are mixed. Thus the purification steps occur before the sol-gel composition is prepared. Accordingly, the sol-gel composition is not prepared by performing the purification operations. Thus the claims include new matter.

Claims 2-5 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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It is unclear what is meant by "preparing, by performing a plurality of purification operations at different times, a sol-gel composition". Accordingly the process of claim 5 and all the claims depending from the process are indefinite.

Applicants' amendment did not overcome this rejection since the phrase's meaning is still unclear.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 2-5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,203,608 in view of U.S. patent 5,244,742.

U.S. patent 6,203,608 teaches piezoelectric films, such as lead titanate zirconate based films, produced by forming a sol-gel composition which comprises a dispersoid obtained from organometallic compounds, applying this composition onto a substrate, drying and baking the film. The reference teaches mixing the raw organometallic compounds and purifying them. The reference teaches the compounds and the composition should be high purity and that it can be purified using conventional methods, such as those used by applicants (col. 4, lines 52-57). Applicants specification shows that these processes will produce composition where the total content of elemental halogen, halogen ions and halogen compounds falls within the claimed ranges. While U.S. patent 6,203,608 does not teach using a plurality of these conventional purification steps, U.S. patent 5,244,742 teaches that to form highly pure PZT sol-gel composition, conventional purification steps can be repeated or used in combination (col. 2, lines 20-22). Therefore one of ordinary skill in the art would have found it obvious to repeat or to use combinations of purification operations taught by U.S. patent 6,203,608 to ensure a highly pure

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sol-gel composition. The multiple purification steps must occur at different time. The references suggest the claimed process.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,203,608.

This reference teaches piezoelectric films, such as lead titanate zirconate based films, produced by forming a sol-gel composition which comprises a dispersoid obtained from organometallic compounds, applying this composition onto a substrate, drying and baking the film. The reference teaches mixing the raw organometallic compounds and purifying them. The reference teaches the compounds and the composition should be high purity and that it can be purified using conventional methods, such as those used by applicants (col. 4, lines 52-57). Applicants specification shows that these processes will produce composition where the total content of elemental halogen, halogen ions and halogen compounds falls within the claimed ranges. The taught film is used in piezoelectric devices, such as oscillation elements and filters which have the structure of claim 6. While the reference does not teach multiple purification processes, as claimed, device claims 6 and 7 are product-by-process claims. This process limitation does not distinguish the claimed devices over those taught. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The reference suggests the claimed device.

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Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,203,608 as applied to claim 6 above, and further in view of U.S. patent 6,247,799.

As stated above, U.S. patent 6,203,608 suggests oscillation elements comprising a piezoelectric layer having the claimed purity. It does not teach devices in which such elements are used. U.S. patent teaches such devices are commonly used ink jet recording heads, which conventionally have the claimed structure. Therefore one of ordinary skill in the art would have found it obvious to use the oscillation element of U.S. patent 6,203,608 as the oscillation element in conventional ink jet recording heads, as described in U.S. patent 6,247,799. While the reference does not teach multiple purification processes, as claimed, device claim 8 is product-by-process claims. This process limitation does not distinguish the claimed devices over those taught. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The reference suggests the claimed device.

Applicants have not shown that the taught films do not have the claimed halogen content with respect to claims 6-8. Accordingly, the rejections are maintained.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk
September 16, 2005


C. Melissa Koslow
Primary Examiner
Tech. Center 1700